MONTHLY WEATHER REVIEW.

Editor: Prof. CLEVELAND ABBE.

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INTRODUCTION.

The MONTHLY WEATHER REVIEW for February, 1898, is based on 2,929 reports from stations occupied by regular and voluntary observers, classified as follows: 147 from Weather Bureau stations; numerous special river stations; 32 from post surgeons, received through the Surgeon General, United States Army; 2,583 from voluntary observers; 96 received through the Southern Pacific Railway Company; 13 from Life-Saving stations, received through the Superintendent United States Life-Saving Service; 31 from Canadian stations; 20 from Mexican stations; 7 from Jamaica, W. I. International simultaneous observations are received from a few stations and used, together with trustworthy newspaper extracts and special reports.

Special acknowledgment is made of the hearty cooperation of Prof. R. F. Stupart, Director of the Meteorological Service of the Dominion of Canada; Mr. Curtis J. Lyons, Meteorologist to the Government Survey, Honolulu; Dr. Mariano Bárcena, Director of the Central Meteorological Observatory of Mexico; Mr. Maxwell Hall, Government Meteorologist, Kingston, Jamaica; Capt. S. I. Kimball, Superintendent of the United States Life-Saving Service; and Commander J. E. Craig, Hydrographer, United States Navy.

The REVIEW is prepared under the general editorial supervision of Prof. Cleveland Abbe.

Attention is called to the fact that the clocks and self-registers at regular Weather Bureau stations are all set to seventy-fifth meridian or eastern standard time, which is exactly five hours behind Greenwich time; as far as practicable, only this standard of time is used in the text of the REVIEW, since all Weather Bureau observations are required to be taken and recorded by it. The standards used by the public in the United States and Canada and by the voluntary observers are believed to generally conform to the modern international system of standard meridians, one hour apart, beginning with Greenwich. Records of miscellaneous phenomena that are reported occasionally in other standards of time by voluntary observers or newspaper correspondents are generally corrected to agree with the eastern standard; otherwise, the local meridian is mentioned.

STORM WARNINGS AND WEATHER FORECASTS.

By Lieut. Col. H. H. C. DUNWOODY, Supervising Forecast Official.

Under this head it is proposed to make note of all extreme and injurious weather conditions occurring during the month, and the warnings of the same issued by the Bureau, with instances, as far as reported by observers or the press, in which these warnings were of special public benefit. The signals displayed by the Weather Bureau will be referred to as "information," "storm," "hurricane," "cold-wave," and "norther," respectively.

The injurious weather conditions of most marked note that occurred during the month were the frosts and freezing weather in Florida on the 2d, 3d, and 4th; the severe storms on the New England Coast of the 1st, 15th, and 16th; and the heavy snow and wind storm that moved from Texas northeastward across the country to New England from the 18th to the 22d. Frosts and freezing temperatures also occurred in the truck-raising regions of Texas on the 3d, 6th, and 21st.

THE FLORIDA FROSTS OF FEBRUARY 2–4, 1898.

Severe cold weather prevailed in Florida on the 2d, 3d, and 4th, with frosts on the 2d as far south as Jupiter. Following are the minimum temperatures reported from Jacksonville, Tampa, and Jupiter, respectively, viz: February 2, 26°, 31°, 40°; February 3, 32°, 38°, 50°; February 4, 34°, 34°, 52°.

Warnings of these injurious conditions were sent as follows, viz: At 9:32, February 1, telegrams to Jacksonville, Tampa, and Jupiter, reading:

Freezing weather in north half of Florida and frosts as far south as Jupiter Wednesday morning. Notify postmasters and give to railroads.

At 10:43 a. m., on the 1st, an additional message was sent to Tampa, as follows:

Freezing weather will extend as far south as your station to-night.

Warnings, substantially the same as the foregoing, were also issued on the mornings of the 2d and 3d.

As showing the benefits derived from the warnings, the following extracts from the reports of observers and newspaper publications are given.

From A. J. Mitchell, Section Director, Jacksonville, Fla.:

All warnings were received sufficiently early for proper distribution. Every possible medium for reaching the various interests of the State was utilized so acceptably that not a complaint has been heard from any quarter regarding the character and distribution of the information. As a whole, the forecast was verified perfectly. The phraseology of the warning was happily selected, being such as to leave no one in doubt as to the probable extent of the cold weather. This office telegraphed the warning to about 140 stations. They were also distributed by the frost-whistle signal of the Florida Central and Peninsular Railroad, which traverses the State, and likewise the Plant System, the Florida East Coast Line, and river steamers on the St. Johns and Indian rivers. From this office alone cards, maps, and telegrams, numbering in the aggregate quite four hundred, were given the public. These, supplemented by cards from forecast distributing centers and the mediums cited above, show a very extensive distribution of the warnings throughout the State.

Coming so early after the freeze of January, the vegetable interest had not assumed normal proportions and the cold was not of such intensity as to destroy citrus trees. However, a great deal of good resulted from the warnings, and the appreciation was general. The total amounts submitted as saved by fruit and vegetable growers alone reach $68,000; and it is but just to say that the figures represent only a part

of the true total, there being hundreds who were benefited, directly or indirectly, from whom no information can be obtained.

In considering the value of warnings it is necessary to take into account almost every human enterprise, particularly in this latitude. Freezing temperatures affect kiln enterprises, such as brick making. One manufacturer informed me that the warning enabled him to save several hundred thousand brick. The small gardeners were especially elated over the warning, and as their savings contribute to the remuneration of the various corporations, it is seen that the importance of such information permeates all walks of business life. Fruit dealers of this city who had bananas en route were enabled to telegraph employees to regulate the temperature of cars to such a degree as to save fruit. Farmers and market dealers took advantage of the information and slaughtered hogs. No information is more important to the farmer who has a lot of hogs to kill, as curing meat in this country is largely dependent upon the degree of cold. Many hogs were killed and the three days of cold were sufficient for a perfect cure of meat. Information of coming cold weather (freezing) does not, perhaps, influence such matters in more northern latitudes where freezing conditions are expected from October to March, but in this State where it is not infrequent for winters to pass without low temperatures, advance information of decided thermal changes means much to many business interests. So it is seen that, when the fruit and vegetable grower is injured to some extent, the damage is partially neutralized by benefits in other directions.

Following are excerpts from letters received from a few of the beneficiaries of the warnings:

"We get the greatest benefit from the warnings, as they are in ample time for us to cover our gardens and plants. We saved $400."

"The weather reports are a great help to the farmers in this section. We saved $1,500."

"Our trees were full of young growth and bloom. We saved about all. The frost whistle signal by train was a great help to us. It gave not only notice of the cold wave, but also notice to labor that would be needed. So we had a good force ready for work."

"The value of property protected was $20,000, all of which was saved. The service is of great value and highly appreciated by the people."

"Value of property protected $100,000. But little lost. Warnings came in ample time on the 1st, 2d, and 3d, and were highly appreciated by the people."

From J. E. Lanouette, Observer, Weather Bureau, Tampa, Fla.:

The warning of the 1st was received unusually early, 9 a. m., local time, and the cold-wave signal was immediately hoisted. The truckers had ample notice of the freeze and they lost no time in taking precautionary measures.

The two railroad agents were promptly notified, also the superintendent of the South Florida Telegraph Company, and they immediately sent the warning to all points on their lines.

In addition to this, this office notified 14 different postmasters over the Western Union Telegraph Company, as directed by your office. The same disposition was made of the warnings of the 2d and 3d.

In this immediate vicinity there is no doubt but that a large quantity of vegetables were saved that otherwise would have been killed.

Irish potatoes were plowed under, strawberries and other low plants were covered with mulching of straw and paper, young orange trees were wrapped or covered with earth above the bud, and taken all in all it is safe to say that the warning was promptly heeded by those engaged in the different agricultural pursuits.

The temperature on the 2d fell to 31°, and considerable thin ice formed in this locality.

But little, if any damage, was done on the 3d and 4th. Ordinarily these temperatures, 38° and 35°, would have been sufficient to cause a heavy white frost, but owing to the unusual dryness of the atmosphere the conditions were not favorable for its formation.

From J. W. Cronk, Observer, Jupiter, Fla.:

The people with much gratification report little injury done in this section. Only on the morning of the 2d was damage reported. On that date tender vegetables, grown since the cold weather in January, were hurt a little in low, unprotected spots, otherwise the damage practically amounted to nothing.

The temperature here, at Jupiter, on the morning of the 2d was down to 40°, and light frost was recorded.

Jacksonville, Fla., Daily Metropolis, February 5, 1898.—Tuesday the warnings sent out of the approaching freeze by the Weather Bureau did immense service in Florida, and saved thousands of dollars by giving people time to protect their fruit trees and vegetables from the wintry blasts. All had ample time to defend their property against the ice king, which came precisely as forewarned.

Leesburg, Fla., Leesburg Commercial, Febriary 4, 1898.—Announcement of the coming cold wave reached Leesburg from the Weather Bureau on Tuesday in ample time for orange growers and truckers to prepare to meet it, and many of them protected their vegetables and orange trees.

Too much in praise can not be spoken of the Government Weather Bureau for the promptness with which the farmers of South Florida were informed of the coming cold.

Tampa, Fla., Daily Herald, February 2, 1898.—Probably one of the best predictions made by the Weather Bureau this winter was that issued by the Central Office yesterday. It stated that freezing weather would extend as far south as Tampa, and frosts as far south as Jupiter by Wednesday morning. That this forecast was verified in a remarkable degree is shown by the reports this morning. At Tampa it fell to 31°, Jacksonville 26°, and Jupiter 40°, with a light frost. * * *

The Chief of the Weather Bureau personally wired the observer to give the warning as wide a distribution as possible, and it is probable that all places in Florida having a telegraph were notified by the Tampa and Jacksonville offices not later than 10 a. m. There is no doubt but this warning saved thousands of dollars worth of perishable property throughout the northern half of the State.

Tampa, Fla., Daily Times, February 2, 1898.—There was nothing the matter with the Weather Bureau yesterday. Its warnings were timely and accurate, and the dissemination of information throughout the vegetable and fruit-growing section of Florida covered as large an area as was possible. It is a pleasure for the Times to compliment the Bureau by giving due credit for service rendered.

De Land, Fla., Florida Agriculturist, February 16, 1898.—A few years ago, notably just after the damaging freeze of 1895, there was bitter complaint on the part of the fruit and vegetable growers at the Climate and Crop Service of the Weather Bureau. It was contended that adequate warning of the approach of the cold wave was not given, and, as a result of the failure, much property that might have been protected and saved was frozen and destroyed.

We are pleased to say that our constituents, the fruit and vegetable growers of the State, have been much better served during the present season than ever before. In fact the service of the Bureau now appears to be everything that could be desired. As an evidence of the efficiency of the service that is now being given our people, that last cold wave period might be taken as a sample. The Bureau for the Florida section, located at Jacksonville, just before the coming of the cold wave in question, sent out over one hundred telegrams, advising the people of the approaching cold wave.

In addition to the matter of disseminating the information of approaching cold waves by wire, the Bureau has arranged with the railroad companies to sound frost warning signals on the locomotive whistles. As many sections of the fruit and vegetable growing regions of Florida are remote from telegraph offices, this method of giving frost warnings is undoubtedly good. It was effectively used during the last cold wave, and many growers, who otherwise would have lost everything, were enabled to prepare for the frost and protect their tender vegetables and plant beds.

The temperature fell to freezing at Jacksonville, Fla., on the morning of February 22, and heavy frost was reported from that station on the morning of the 23d. Warnings of "frost and freezing weather in northern Florida" were sent to Jacksonville, Tampa, and Jupiter on the morning of the 21st.

FROST IN TEXAS.

As showing the warnings issued in connection with the frosts that occurred in the truck-growing regions of Texas on the 3d, 6th, and 21st, and the benefits derived therefrom, the following extracts from reports of Dr. I. M. Cline, Local Forecast Official and Section Director, Galveston, Tex., are given:

As the a. m. weather map of February 2, 1898, showed conditions advancing which might give injurious temperatures in the trucking section Thursday morning, February 3, the following special warning was issued:

"Temperature may fall to 31° 50 to 100 miles from Galveston and 39° at Galveston Thursday."

The following are the temperature conditions recorded on Thursday, February 3, 1898, in the section for which the forecast was made: Galveston, 39°; Houston, 32°; Missouri City, 32°; Conroe, 30°; and Brenham, 28°.

As in the case of previous warnings, vegetation was protected generally on the strength of the warning of February 2, and saved from injury by the cold of the following morning.

The a. m. weather map of February 5, 1898, presented conditions very favorable for frost in this vicinity on the following morning, and a special warning was made and distributed by mail with the regular a. m. forecast, as follows:

"Probably frost 50 to 100 miles from Galveston, with temperature 34°, and minimum 42° at Galveston, Sunday morning."

The following temperatures occurred Sunday morning in the districts for which the forecast was made: Galveston, 42.2°; Houston, 42.2°; Missouri City, 36°; Brenham, 36°; and Conroe, 34°. Light frost occurred in exposed places to the coast line and on adjacent islands as far in as Galveston.

The warnings were heeded by truck growers, who protected their vegetables and prevented injury.

The weather conditions at 8 a. m., Sunday, February 20, 1898, indicated that injurious frosts might occur on the following morning in this vicinity, and the following special forecast made and distributed:

"Frost 50 to 100 miles from Galveston, with temperature 34°, and minimum temperature 43° at Galveston, Monday morning."

Frost occurred to the coast line Monday morning, and in many localities killed much tender vegetation and put strawberries back two to three weeks where not protected. Through the instrumentality of the warning, which was mailed to all points within reach, besides being telegraphed out, the greater portion of the crops was saved from injury.

Temperatures were recorded in the district forecast for, as follows, on Monday, February 21, 1898: Galveston, 41.3°; Houston, 36.5°; Missouri City, 33.0°; and Conroe, 30.0°.

Acknowledgments have been received from a few of those who made use of the warnings, from which the following are extracted:

"Alvin, C. W. Benson.—Protection given to hot beds and early vegetation, and saved probably $1,500 worth. Temperature went to 34°.

"Hulen, Fred W. Malley.—Warning of February 20 enabled me to save $300 worth of truck, which, without the warning, I would have lost.

"Arcadia, W. W. Sloan.—Warning resulted in saving of small vegetables and berries.

"Missouri City, C. F. Mercer.—Frost warning received fourteen hours in advance of frost. Vegetation was protected."

It is estimated by local dealers that part of the early crop of vegetables susceptible to injury by frost at this time is worth about $10,000, and more than half of this was saved from injury. Also the following newspaper extract:

Galveston, Tex., Galveston Evening Tribune, February 3, 1898.—The local weather bureau, through yesterday's Tribune, gave the midday condition of the weather in Texas, predicting colder weather, and a special warning was issued by the local weather office in the interest of the truck growers of this section. The cold weather arrived in accordance with the prediction and low temperature prevailed generally over Texas this morning. * * * * *

Not a single injurious frost has occurred this winter, in this vicinity, that has not been predicted by the local weather bureau. As a result of these predictions the coast country farmers have been enabled to protect their crops and very little damage has resulted. As an illustration of how the news from the Weather Bureau is circulated, what occurred at Alvin yesterday may be cited. Over 200 truck farmers reside at Alvin and vicinity. As soon as the forecast was made by the Galveston office, warnings were telegraphed to all stations in the coast country and during the day flags were displayed and red lights shown at night.

The farmers of the coast country place a great deal of reliance in the predictions of the Weather Bureau.

STORMS OF FEBRUARY 1, 15, AND 16, ON THE NEW ENGLAND COAST.

The severe storm of February 1, as it began in January, will be found fully treated of in the REVIEW for January, 1898.

The storm which visited the New England Coast on February 15–16 developed in Montana and moved southeastward across the Lake Region. It was accompanied by heavy snow in the lower Lake Region, but did not assume an especially severe character until the night of the 15th, when it reached the New England Coast. Pressures of 28.80 and 28.88 were reported from Portland and Boston, respectively, at 8 a. m. of the 16th. Information signals for this storm were ordered from Eastport to Delaware Breakwater at 10 a. m. of the 15th. These were changed to storm-southeast at 1 p. m., and storm-southwest ordered as far south as Hatteras. The following maximum velocities during the twelve hours ending at the hours named were recorded, viz: 16th, a. m., Eastport, 56; Block Island, 48; Nantucket, 36; New York, 46; Atlantic City and Norfolk, 48; Hatteras, 52. 16th, 8 p. m., Eastport, 56; Portland, 38; Boston, 44; Woods Hole, 54; Nantucket, 42; Block Island, 60; Sandy Hook, 42; Atlantic City, 45; Cape May, 48.

THE HEAVY SNOW AND WIND STORMS OF FEBRUARY 18–22.

Concerning the warnings for this storm issued from the Chicago office, Prof. E. B. Garriott, in charge of that station, reports:

The only severe storm which was felt within the Chicago forecast district during the month of February was the one which developed in the lower Mississippi Valley during the night of the 18th, moving northward to northern Illinois and then slowly eastward to the middle Atlantic Coast.

Advisory messages in the interests of shipping were sent to the open ports on Lake Michigan, as follows: The 18th, 9 p. m., "Brisk northeast winds on Lake Michigan to-night and Saturday;" the 19th, 10 a. m., "Snow, high east to north winds indicated;" the 20th, "Dangerous northeast to north gales on the Lake, with snow, followed Monday by much colder weather." No vessels left Chicago during the 19th and 20th, and the steamship *City of Traverse*, which left St. Joseph, Mich., at 7 a. m. on the 20th bound for Milwaukee, was unable to make that port and was obliged to run into the Chicago harbor for refuge.

Warnings for heavy snow and high northeast to north winds were sent at 10 a. m. on the 19th to Upper and Lower Michigan, Wisconsin, Iowa, southern Minnesota, and the extreme northern portions of Illinois and Indiana, and similar warnings were again issued at 10 a. m. on the 20th to Upper and Lower Michigan, eastern Wisconsin, Chicago, and Indianapolis. These warnings were issued mainly in the interests of transportation companies and were fully verified, the snowfall in some portions of the Upper Lake Region exceeding 18 inches.

Heavy precipitation in connection with this storm fell in New York and New England on the 21st and 22d, and gales occurred on the middle Atlantic and New England coasts on the 20th and 21st.

Northeast storm signals were ordered from Portland to Delaware Breakwater and southeast thence to Hatteras at 2:30 p. m. of the 19th, with the following message, viz:

Storm in central Mississippi Valley moving slowly northeast, likely to cause dangerous easterly gales on the Atlantic Coast between Hatteras and Portland by Sunday morning, with rain in the Middle Atlantic States and snow in New York and New England.

The following maximum velocities during the twelve hours ending at the hours named were reported, viz: 8 a. m. of 20th, Block Island and Sandy Hook, 46. 8 p. m. of 20th, Block Island, 68; New York, 46; Sandy Hook, 36. 8 a. m. of 21st, Nantucket, 46; Block Island, 54; New York, 44; Sandy Hook, 40.

The following telegram in connection with the warnings issued for this storm, published in the Washington Evening Star of February 21, 1898, is given:

Boston, February 21.—The northeasterly storm which began yesterday increased to-day. Rain fell in torrents. The weather off the coast was very severe, the gale causing high tides and a heavy sea. Few vessels were caught, however, owing to the timely warning given by the Weather Bureau. The storm was more severe in the southwestern part of New England. There was practically no direct communication by telegraph with New York, the full force of the storm having been felt south of Albany.

On February 15 and 16 warnings of a norther in Montana were issued from the Weather Bureau office at Chicago, concerning which Mr. J. Warren Smith, Section Director at Helena, Mont., reports:

The "norther" flag was displayed at this office and at the other display stations in the State, and active steps were taken to distribute the warnings as widely as possible. The warning of the 15th was sent to over 200 different places, and that of the 16th to about 400.

Warnings were generally received from two to twenty-four hours in advance of the storm. The storm was not severe in any section, but the following extracts from reports show that stock was placed in a protected location as far as possible and that direct benefits resulted.

Clark Ranch: Warnings were distributed to 11 sheep stations; owing to warnings there was no loss.

Big Sandy: Stock kept near protection and shelter; storm not bad.

Dodson: Stock was driven in on short notice.

Bercail: All sheepmen were mindful that their stock was in safe quarters; the efforts of the Bureau were much appreciated by the stockmen.

Lewiston: These warnings reached the owners of about $2,000,000 worth of sheep and about $50,000 worth of cattle. The stock saved by the precautions taken on account of confidence placed in the signals would doubtless number several thousand sheep and cattle. Then, too, the precautions taken and proper shelter being provided, not only prevented actual loss of sheep, but also protected them from severe exposure, thus preventing any suffering, which always causes a retardation in the growth of wool, makes a break in the fibre, and renders the wool less marketable. Hence, the benefits to the stock interests would reach a great deal further than the mere preventing of the loss of life among herds.

The following newspaper extracts in relation to the forecasts and warnings generally are given as of interest in this connection:

Record, Cleveland, Tenn., February 25, 1898.—The weather predictions sent to this office by the U. S. Government have been unusually beneficial this winter. There has been so little cold weather that farmers scarcely know when to save their pork, and weather predictions became very necessary. The predictions are received every day about 9:45 a. m.

Pensacola, Fla., News, February 11, 1898.—The weather service is regarded with the deepest interest by all citizens and cognizance is taken of every inaccuracy.

It is especially gratifying to state that during the past month, January, not a single imperfect forecast was issued from our local office. Considering the large maritime interests of Pensacola, which depends upon the accuracy of weather predictions, this is worthy of special mention. Where good and faithful work has been done it should be commended.

Our Weather Bureau has grown to be such an institution that we, as a nation, would not only feel its loss, but be almost at sea in our daily routine of life without it.

AREAS OF HIGH AND LOW PRESSURE.

By Prof. H. A. HAZEN.

There were 10 high and 8 low areas sufficiently well defined to be traced during the month. The paths will be found on Charts I and II, and the principal facts as to appearance, disappearance, duration, and velocity are given in the accompanying table.

HIGHS.

The principal locus of high areas was to the north of Montana, where 7 out of the 10 were first noted. The remaining three originated in the lower Missouri Valley. Numbers VII and VIII were last seen to the north of Lake Superior, and the other 8 could be traced to the Atlantic. The weather conditions have been remarkably mild. Only one cold wave of any severity was experienced, and that only in the Mississippi Valley as high area VII moved across Montana. The fall in temperature in twenty-four hours on February 17, a. m., was 34° at Miles City. On the evening of the same day the area of fall of 32° covered eastern Kansas. The morning map of February 18 showed a fall of 34° at St. Paul.

LOWS.

Five low areas were first noted off or near the north Pacific Coast. Nos. II and III had their origin north of Montana, and VII on the south Pacific Coast. No. VI was last seen in the lower Lake Region, and the remaining 7 disappeared off the north Atlantic Coast or else in the St. Lawrence Valley.

As low area No. XII of January reached the northeast coast it caused the highest winds of the month, namely, 71 miles an hour at Nantucket, and 70 at Woods Hole, a. m. of February 1. A wind of 68 miles was noted at Cleveland p. m. of 15, as low area No. IV passed to the eastward. The lowest pressure of the month 28.80 inches occurred at Portland, Me., as this same low area passed up the Atlantic Coast a. m. of the 16th. As low area No. VII approached the northeast coast, p. m. of the 20th, a wind of 68 miles was reported from Block Island.

Movements of centers of areas of high and low pressure.

Number.	First observed.			Last observed.			Path.		Average velocities.	
	Date.	Lat. N.	Long. W.	Date.	Lat. N.	Long W.	Length.	Duration.	Daily.	Hourly.
High areas.		°	°		°	°	*Miles.*	*Days.*	*Miles.*	*Miles.*
I	31, p. m.*	42	98	2, a. m.	33	84	970	1.5	647	27.0
II	1, a. m.	52	114	4, p. m.	46	59	3,680	3.5	1,052	43.8
III	4, p. m.	42	102	10, p. m.	36	78	3,970	6.0	662	27.6
IV	8, p. m.	52	109	11, p. m.	42	69	2,380	3.0	793	33.0
V	11, p. m.	37	102	13, p. m.	32	84	1,640	2.0	820	34.2
VI	14, p. m.	53	110	18, a. m.	40	72	2,370	3.5	677	28.2
VII	16, p. m.	51	116	19, p. m.	49	81	1,560	3.0	520	21.7
VIII	19, a. m.	50	114	22, p. m.	50	58	1,800	3.5	514	21.4
IX	22, a. m.	55	113	27, a. m.	50	86	1,590	5.0	318	13.3
X	26, p. m.	49	109	1, p. m.†	37	73	2,400	3.0	800	33.3
Total							22,360	34.0	6,803	
Mean of 10 tracks							2,236		680	28.3
Mean of 34 days									658	27.4
Low areas.										
I	1, a. m.	51	97	3, a. m.	46	74	1,110	2.0	555	23.1
II	2, p. m.	47	127	5, p. m.	48	72	2,920	3.0	973	40.5
III	5, a. m.	51	110	13, p. m.	48	53	4,450	8.5	524	21.8
IV	11, p. m.	53	117	15, a. m.	50	68	2,160	3.5	617	25.7
V	13, a. m.	53	121	17, p. m.	49	53	3,600	4.5	800	33.3
VI	15, a. m.	51	124	18, a. m.	42	84	2,460	3.0	820	34.2
VII	17, a. m.	31	112	23, a. m.	41	67	3,240	6.0	540	22.5
VIII	19, a. m.	48	128	28, p. m.	49	60	3,770	9.5	397	16.5
Total							23,710	40.0	5,226	
Mean of 8 tracks							2,964		653	27.2
Mean of 40.0 days									593	24.7

*January, †March.

THE WEATHER OF THE MONTH.

By A. J. HENRY, Chief of Division of Records and Meteorological Data.

The statistical aspect of the weather of the month is presented in the tables which form the closing part of this REVIEW. The numerical values in the tables have been generalized in a number of cases, the results appearing on Charts Nos. III to IX, inclusive. Table I in particular contains a variety of details from which the reader may select those most interesting to himself.

PRESSURE AND WIND.

Normal conditions.—The geographic distribution of normal barometric readings at sea level and under local gravity for February in the United States is shown by Chart VIII of the MONTHLY WEATHER REVIEW for February, 1893.

The normal values for February, as compared with those for January, are lower by about 0.05 inch (from 30.20 to 30.15) over the Plateau and Rocky Mountain regions and the South Atlantic Coast States; elsewhere the changes are slight.

The regions of relatively high pressure in February are nearly coincident with those of January (see page 5 of this volume). The only change is an extension of the western area to the northeastward as regards its position in January; in February it covers southern Idaho, northern Utah, Wyoming, Montana, the Dakotas, Nebraska, and western Minnesota.

Pressure is lowest over the north Pacific Coast and the Canadian Maritime Provinces, whence it decreases to the areas of low pressure occupying the North Atlantic and Bering Sea, respectively.

Northwesterly winds prevail on the Atlantic Coast, and northeasterly or easterly on the Gulf Coast. In northern Texas the prevailing winds are northwesterly, as on the plains, while westerly or southwesterly winds prevail over western Texas. In southern Arizona the winds of winter are northerly, while in central Arizona they may be either southwesterly or easterly.

On the Pacific Coast the winds generally coincide with the direction of the coast line; on the upper half of the coast, say from Eureka northward, southerly or southwesterly winds are most likely to prevail; on the southern half northwesterly